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A . Report Title: The Aerospace System and the Possibilities of Collaboration in Latin America

B. DATE Report Downloaded From the Internet 3/17 /98

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D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: VM **Preparation Date:** 3/18/98

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The Aerospace System and the Possibilities of Collaboration in Latin America

General

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Commander-in-Chief, Chilean Air Force

It is human nature to think and believe that key activities and main events always revolve around us, thus making us the center of attention. A similar phenomenon occurs with countries. The press, the government, and all of us have the tendency to consider our nations the center of the world. In our minds, the center of the universe is where we are.

Ever since maps were drawn for the first time, some countries were located, relative to each other, above and below an arbitrary reference point. In the vernacular, the "upper" concept has led to the misbelief that "upper" means "is above" and "superior" to the "lower" location. This is not always the case. Throughout the years, this arbitrary interpretation has led to erroneous concepts and opinions.

On this occasion, I wish to sincerely thank our host, Gen. Ronald Fogleman, for giving me the extraordinary opportunity to bring our young South American continent to the "Center of the Universe" for approximately 20 minutes.

The South American continent is composed of countries whose valiant people are making an energetic effort to overcome current challenges. These countries are reaching for a future that would move them from a state of hope to one of growing well-being and continued sustainable development.

It is not my intent to mislead you into believing that my presentation expresses the common thought prevalent in the countries of the region. Nevertheless, it is my intent to make you aware of how we in Chile visualize the so-called "Aerospace System." I believe the system's concept may be similar to each of yours, although with different connotations. These connotations are derived from efforts made by parts of the system that contribute to the country's development.

For a better understanding of the concept, I will first describe the regional picture. I will highlight the benefits and risks demanding a response from the system. Next, I will explain the specific concept and system functions regarding national security, development, and the international presence of the country. I will also include a brief description of the system's elements. After I have explained the system, its functions, and its elements you will be able to better appreciate regional collaboration possibilities through the interaction of its component parts.

The Regional Context

From the historical perspective of the Chilean economy and the economies of the majority of the region's countries over the last five decades, I must emphasize that radical changes in terms of orientation and speed have occurred.

We have transitioned from an inward-directed growth economy based on a high-cost national production policy with strong protectionism and state intervention, guided by a strategy that shies away from imports, to the current externally oriented economic strategy, with an open economy, oriented toward competition in the world markets.

As a centralized economy, the state had almost total responsibility and power over its decisions. Currently, with the private sector as the driving force in its development, this responsibility is shared by all the country's sectors. The results of this economic strategy have been highly beneficial. As an example, Chile's growth rate has doubled in the past 10 years, reaching 106.3 percent.

Chile, like other countries in the Americas, grows at a constant rate. What consequences does this growth highlight, when looked at from our aerospace perspective?

From a simple analysis, it is clear that important country benefits are derived in multiple areas. Increased employment, increased per capita income, higher salaries, better income distribution, higher production, and explosive increases in air traffic have forced revision and early implementation of all planned and projected upgrades to airport infrastructure, radar equipment, incorporation of new technology, etc.

However, what is promising to one country might not be promising for others. Growth in the previously mentioned areas might be considered, to some degree, "threatening" to another nation's interests. On the one hand, a country should take advantage and prolong its growth, while on the other, it takes prudent, cautious, and wise steps to confront and handle possible risks, mainly through negotiation, dissuasion, and mutual trust.

Keeping in mind these considerations, which are not all-encompassing, I will explain our Aerospace System concept and the contributions this system might make to the development, national security, and international presence of a country, through the interactions of its component parts.

The Aerospace System Concept

The aerospace environment is a vibrant activity that demands special attention in the modern world because of its relevance in the integration and progress of nations.

In Chile and in most of the countries of the Americas, this requirement is magnified when one considers the particular characteristics of our geography and our strategic location in relation to the world's principal international trade zones. The air medium, a phenomenon of this century, constitutes a dynamic response to our need for national integration as well as for increased international commerce and relations.

Aviation, since its origins in our countries, is in a constant evolutionary process on one hand, expanding to maintain its characteristically accelerated technological development, but adapting and balanced, on the other hand, to each country's economic, political, and demographic realities required to progress as a nation.

Lately, modernization has added a superior dimension to aviation space. Here, Chile, as with other countries in the region, participates as a user in various areas of national interest. We are also involved in the early stages of design and construction of satellites.

In this area, all of Chile's efforts have been consolidated under a National Aerospace System principally led by the Chilean Air Force. Additionally, the agency responsible for the control and operation of Chilean air traffic and its navigation systems, called the Direcci"n General de Aeronutica Civil (Civil Aeronautics General Directorate), is a major player. This agency reports directly to the Commander in Chief of the Air Force. Additional members are national aviation industry enterprises, the space organization in charge of space-related activities, aerospace-oriented higher education centers of excellence, and private and commercial organizations that are users of air and space information.

The success of the Aerospace System is based on the harmonious and efficient interaction of its component parts. It is essential that a country maintain and upgrade the aerospace infrastructure and resources of its component parts. If any component fails or is weakened, the system's combined efficiency will reflect it.

The National Security Function

The functions performed by the Aerospace System allow for better visualization of the interaction of its component parts. These are generically oriented towards national security, the development of the countries, and their international presence.

The first system function is national security. Its task is to execute positive control and surveillance of the country's sovereign airspace.

This function must, by necessity, be developed in a close and coordinated fashion among several of the system's component parts, such as the Civil Aeronautics General Directorate and the Air Force. This Civil Aeronautics organization, in charge of commercial, civil, private, and military air traffic control and navigation aids, and the Air Force, with its implicit reaction capability against the illicit intrusion or violation of controlled airspace, must work hand in hand to control and protect our airspace.

It is here that the Air Force is tasked to react, identify, capture, and, if necessary, use force against such intruders or violators. This is accomplished by the constant development and improvement of traditional capabilities which allow the Air Force to face all kinds of challenges and threats. These threats include those commonly referred to as "threats without boundaries," such as flights by illegal drug traffickers, weapons smugglers, terrorists movements, etc.

Recently, environmental threats, threatening the quality of life of the nation, have been added. These threats have created additional taskings under the national security function, using airspace surveillance for the prevention of forest fires, oil spills, contamination of waterways, etc.

Above all, the System must orient its efforts towards the promotion of peace. The prevention and avoidance of provocations that might affect the country's stability--necessary so it may continue its democratic developments under security conditions that permit the achievement of proposed objectives--is imperative.

The Development Function

No less important is the function played by the Aerospace System to benefit the nation's development. This is how a large number of typical and traditional warfighting Air Force capabilities are used in daily socio-economic activities.

Chilean air and space assets, like those found in the majority of the countries of the Americas, continue the tradition of integrating isolated areas of our territory with the rest of the national community by air. There are sections of the Cordillera de Los Andes (Andes Mountains) where horse and aircraft are the only possible means of transportation. Similarly, the Air Force is the executive agent charged with helping the citizenry in natural disaster-prone zones faced with earthquakes, avalanches, floods, etc. We are first on the scene with humanitarian assistance, medical equipment and personnel, temporary shelters, site security, etc.

Another important element of the system is commercial aviation. Because of its vigorous development during the last 10 years, commercial aviation has earned an important place in air cargo and passenger traffic. Fifteen years ago, Chile only had two major commercial airlines. Today, in 1997, it has seven, with a propensity to increase their respective air fleets.

The aeronautics industry, private and national, is another component that has opened a new frontier in high-technology opportunities. This constitutes a new challenge and opportunity for future generations.

The development of the national aeronautics industry contributes to the development of the country by creating jobs, freeing resources, creating national services that no longer have to be imported, and producing exports that generate corresponding income. For example, as you probably know, the Chilean national aeronautics enterprise (ENAE) builds our basic flight trainer, the T-35 Pilln. This T-35 Pilln primary flight instruction aircraft is currently in service with the Chilean Air Force and other friendly air forces.

In Chile, as in other Latin American countries, our space development strategy is focused on a role as specialized users and developers of our own independent space capabilities to a degree. These capabilities include gathering and supporting a group of high-level Chilean space scientists and engineers and building our own satellites. Together they will facilitate country-wide access to technological exchange and collaboration in space related fields, and thus reinforce the potential growth of the nation.

International Presence

A third function of the Aerospace System consists of its contribution to the nation's international presence. In this aspect, the contribution of Air Force members and the participation of several American nations to United Nations peacekeeping forces are remarkable.

In this globalized and interdependent world, it is impossible to believe that what happens in one area of the planet will not have repercussions at home. We cannot expect stability and peace for our nation's development if we are not also prepared to cooperate to resolve conflicts that may indirectly cause instability.

Fully cognizant of this, the Chilean Air Force is participating in a second peace mission in Iraq with personnel and five helicopters in support of the UN mission to monitor weapons of mass destruction. Chile's first contribution in the Persian Gulf area was successfully completed when we performed a similar mission in Kuwait in 1992, when Chilean Air Force helicopters and personnel provided transportation for mine clearing operations and for UN observers.

Also notable is the participation of regional air forces in the SICOFAA, Sistema de Cooperacion entre las Fuerzas Aereas Americanas (American Air Forces Cooperation System). Through this organization, they coordinate, organize, and join multinational efforts in disaster or accident relief, communications, logistics, meteorology, training, and aerospace sciences, technology, and medicine.

Additionally, today, as we have done for over a decade, the Chilean Air Force frequently participates in Air Staff High Command consultations with its counterparts from neighboring countries. These consultations are part of the confidence-building measures mutually instituted and aimed at preventing incidents and fostering mutual understanding among our nations.

Last, Chile's Feria Internacional del Aire y del Espacio, FIDAE (International Air and Space Fair), a major aeronautics show that occurs every two years, is yet another of the System's elements. FIDAE's prestige and international success contribute toward the country's international presence. We are proud that the show has achieved world recognition as one of the four most prominent in the world.

Possibilities of Collaboration

It appears contradictory that Europe has been able to form a political and economic community despite two world wars and differences in language, history, culture, and religion, whereas South America whose countries have had a common language, religion, history, similar origins, and few wars, has not been capable of integration as a community.

Even though there have been efforts, especially in the economics field, to achieve some degree of integration through multilateral agreements, such as the Pacto Andino (Andes Pact), MERCOSUR, and other bilateral agreements, they are not to the same level as those existing in the European continent.

Some believe the principal reason arises from historical and unresolved issues that affect the trust between states. Trust is necessary to transform agreements into a communal process.

Nevertheless, the consolidation of democratic systems in all of the countries of the Americas, except Cuba, has given rise recently to a search for enabling mechanisms of greater understanding among those states. We are fully aware of the degree of interdependence that characterizes the regional picture.

- **High command consultations.** Among the established mechanisms are the meeting of regional armed forces high commands and the defense ministerial meetings, intended to specifically establish a series of confidence-building measures whose objective is to provide a higher degree of mutual trust among the countries.
- **CONJEFAMER.** Through the Aerospace System, the air forces of the Americas are cooperating with their respective governments in this integration process. The system enables collaboration areas, either multilateral, such as the CONJEFAMER, Conferencia de Jefes de Fuerzas Areas Americanas (Conference of American Air Chiefs) or bilateral, as mentioned earlier.
- **Aeronautics Industries.** Another form of cooperation within the region occurs among the aeronautics industries of the countries--yet another component of the Aerospace System. Thus, ENAER, the Empresa Nacional de Aeronautica de Chile (Chile's National Aeronautics Enterprise) manufactures parts for Brazilian aircraft built by EMBRAER, the highly prestigious Brazilian aeronautics enterprise. Other examples exist in aircraft and equipment maintenance agreements among the region's air forces, as well as in other logistic areas such as supply and air transportation.

Undoubtedly, industrial technology in the aeronautics environment is an excellent mechanism for joint projects and integration of the continent's countries. This is why we should continue to emphasize continued and growing relationships in this environment.

- **Search and Rescue.** Another important mechanism for integration and collaboration for countries of the region is the series of existing agreements among the air forces for assistance in search and rescue missions (SAR).

The Chilean Air Force has achieved initial operational capability for the COSPAS-SARSAT System, which provides emergency locator information for use by SAR units. Participating air forces coordinated on the type and form of SAR data they desired to receive from Chile, and they currently receive emergency locator data for SAR activities in their own territories. This system of cooperation and collaboration has been of great value to Chile and its neighbors.

- **Space.** Space is perhaps the area where a degree of necessary interdependence is most clearly defined.

The high costs and the associated high technology level require the search for partnerships where combined efforts allow projects of mutual benefit to be carried out at significant individual cost savings. Every day, and with growing emphasis, the countries of the continent participate in the design and construction of devices to be used by the space component of the Aerospace System. We are aware of the importance of all space-related activities in the national development of our countries.

In addition to the individual efforts of the countries to create their own space organizations aimed at channeling their space efforts, it is my belief that we should look ahead to the creation of a South American Space Agency. The initial objective of this South American Space Agency would be to coordinate, and where possible, integrate efforts to achieve economy and cost savings, prioritize projects of mutual interest, and take advantage of each country's intellectual and physical resources to achieve greater and better results for all of South America. This could eventually become the most significant vehicle for continental integration and cooperation and a key element of the Aerospace System.

- **Disaster Relief.** Mutual assistance in the event of regional natural disasters is an area of major regional collaboration and integration. Only hours after the occurrence of a disaster in any zone of the continent, familiar proof of mutual assistance is visible through the presence of aircraft from friendly air forces providing humanitarian assistance and cooperating with local governments in their task of assisting the population. Within the activities of the SICOFAA, Sistema de

Cooperación entre las Fuerzas Areas Americanas (System of Cooperation of American Air Forces), periodic exercises are planned, developed and executed at a continental level. In these, a simulated disaster in one country is relieved by air force assets belonging to the system. The last such exercise, called Operaci"n Confraternidad, took place in Chile in 1988.

- **"Boundless Threats."** Another important area of cooperation that needs to be further developed among the countries of the region through Aerospace System components, is the combined effort to combat the so-called "boundless threats" related to drug trafficking, arms smuggling, and terrorist movements within the controlled airspace of each country's respective jurisdictional area of responsibility. Conversations among members of the Committee dealing with illegal flights within the SICOFAA and the contacts established among air forces have permitted the exchange of experiences regarding methods and operational procedures used by these criminals, as well as the development of better control systems.
- **Combined Peacekeeping Operations.** Another activity within the Aerospace System international presence function, fertile for continental cooperation, is increased participation in combined UN peacekeeping operations and/or airlift support in support of those operations. I consider this an important mechanism for cooperation and integration among the air forces and within our combined capability. This is a form of contribution to global peace efforts whose object is bringing stability to various regions of the world. We can no longer remain isolated or independent of these actions.

Many other forms of integration and collaboration using the components and functions of the Aerospace System could successfully be implemented among the countries of the region. Unfortunately, available time does not permit me to expand on them more profoundly, as I would have desired. Nevertheless, I believe I have given you some idea of the different areas where opportunities exist for collaboration and integration. These can be expanded upon as far as our imagination and will may take us.

Objectives and Directions

There is no doubt the fall of the Berlin Wall put an end to an era, but it also shortened end objectives. For some, it is hard to visualize what the future will be like. Others have proclaimed the "End of History." A history without objectives would mean freedom is coming to an end. An end to hope would also mean the end of culture. There would be no "for what?," no personal or joint project revealing what is known as "immediatism," and loyalties would fall apart. Today, we have a strong affection for material things, but little of loyalty to institutions. Today's society shows increasing difficulty with the concept of belonging. This phenomenon of current society is affecting the armed forces, specifically the air forces, because of the degree of trust and loyalty implied by the profession of arms.

This requires the appearance of a form of ethical leadership, arising from concrete circumstances, which provides a clear image of a desirable future or situation. Personnel belonging to our organizations and the components of the Aerospace System demand a vision of grandeur where integrity and the solid values required are present so people can be trusted and be worthy of their trust. The self denial implied by a vision of service is the best commitment future leadership can provide to one's organization and one's country.

Thus, I concur with the view expressed by General Fogleman during his speech before the Heritage Foundation December 17, 1996, in which he talked about the three core values existing within the United States Air Force. I would like to quote them here in brief form: The first requirement is **individual integrity**. The second is **service before oneself**, and the third is **search for excellence** in all our endeavors. These are guiding values which should guide the behavior of our people in an activity that has suffered dramatic changes and will change even more.

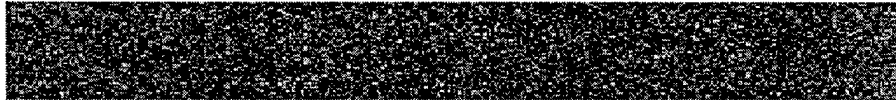
We feel very uneasy when we read about current states being transformed or fragmented into newly created republics. We are in a high technology world where national markets are becoming less important than local, regional, and global markets--a world where local, regional, and global markets

will definitely be the most dynamic of the new economy. Finally, while some states will insist on "sovereignty," others, even more powerful and economically developed, will renounce it to become members of an economic and political community.

It would be fair to say that it is the rate of change that distinguishes this period from previous periods. Also, I can state without fear or equivocation that the Aerospace System has significantly contributed to this change. The system is also partially responsible for mankind enjoying its most hopeful moment in history with some very positive aspects.

Among these are the application of new technologies, making possible the use of less and cleaner energy sources--a fact that can also be monitored by the Aerospace System elements from space--new space techniques in support of agriculture that have enabled an increase of worldwide food production (thus achieving by 1992 a 16 percent decrease in chronic malnutrition in the planet), and the digital information revolution and space communications, which together have the inherent potential to educate millions of people.

There are reasons for being optimistic, even more so when we realize we are part of the system that is the main contributor to make this spaceship called Earth a more secure and developed planet, with better cohabitation of all its crewmembers. The direction of the voyage is of no consequence. How we get there is!



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